

BAYER CORPORATION

4039373

PROJECT

Silane Terminated Polyurethane

PROJECT NO. 01-KMH-006

NAME

K Henderson

DATE

1/29/01

(PRINT)

REFERENCE:

OBJECTIVES:

Make 4 L

Materials

EW

Amount

Eq

Ratio

(1) IPDI

110.91

139.26

1.256

2

(2) 12200 Acclaim
Polyol5783.51
3630.96

3630.96

0.628

1

(3) XP-7139

366

229.78

0.628

1

(4) Ti₂ (200 ppm)

.80

(5) Vinyl Trimethoxy silane
(0.5 phr)

20.0

Time

Temp

Remarks

4 pm

21.2

Charged a 5 L flask

(1) IPDI and (2)

Stir. Na purge

Condenser R.

Added .80 g Ti₂

Turn heat up to 60°C

4:30

4:50

6:45

60°C

64°C

NCO = 0.72%

Used ~ 2 g of sample

Added XP-7139

No NCO Remains

per React IR shutdown

Heat to 60°C

Added Vinyl Trimethoxy

silane (20 g)

Let stir 30 min.

Delivered to Derek

Crawford.

Na blanket.

Theoretical NCO: (IPDI + Acclaim)

1.256

3.7022

0.628

0.628

4.200

6003.54

CONCLUSION:

Visc @ 25°C = 91.620 KPS

Delivered to Derek Crawford.

Sent for GPC

EXPERIMENTER (signature)

Karen Henderson

DATE

1/29/01

READ AND UNDERSTOOD (signature)

Lucy Roach

DATE

2/8/01

TRANSFERRED (signature)

Best Available Copy

BAYER CORPORATION

4039377

PROJECT Silane Terminated Polyurethane
 PROJECT NO. _____ NAME K Henderson DATE 2/6/01
 (PRINT)

REFERENCE:

OBJECTIVES:

Materials	EW	Amount	Eg	Eg Ratio
(1) IPDI	110.71	126.77	1.143	2
(2) "9100" Polyol Supplied by Kurt Frisch (obtained from New Town Square) OH # supplier = 8.75	641.43	3664.67	0.571	1
(3) XP-7139	366 209.17	209.17	0.571	1
(4) T ₁₂ (200 ppm) (dibutyltin laurate)		.80		
(5) Vinyl trimethoxysilane		20.0		

Time

Temp

Remarks

10 am

20.1

A 5-L flask was charged (1)
 (1) The polyol was added.
 Stir 1/2 purge added
 80g T₁₂ turned heat
 to 60C

10:30 am

60C

NCO = .63% theoretical 6337

1 pm

60C

Added XP-7139
 No NCO Remains per
 React IR

4:30 pm

60C

Added 20g vinyl
 trimethoxysilane to
 stabilize stir ~ 20 min
 Pour 90g. Deliver to
 D. Crawford

CONCLUSION:

VISC @ 25C 16,100 CPS

H₂O water = 0.009

Sent for GPC
 Delivered to Derek Crawford

EXPERIMENTER (signature)

Karen Henderson

DATE 2/6/01

READ AND UNDERSTOOD (signature)

Richard Roesch

DATE 2/8/01

INFERRED (signature)

BAYER CORPORATION

4042581

PROJECT Silane Terminated PolyurethanePROJECT NO. 01-PP-018 NAME DINESH PETHIYAGODA DATE 5/7/01
(PRINT)

REFERENCE:

OBJECTIVES:

Prepare 250g of Resin for the PACE team using Silquest Y-5187 (gamma-trimethoxysilane) and Acculim 9100. Samples to be handed to Derek Cranford.

Materials	EW	Amount/g	Egr	Egr Ratio
① Acculim 9100 (OH# 7.49)	7295.19	239.80 (239.90)	0.033	1
② Silquest Y-5187 (Gamma-trimethoxysilane)	270.97	8.91 (9.20)	0.033	1
③ T ₁₂ (DBTDL)		0.05 (Not added)		
④ Vinyltrimethoxysilane (Silquest A-11)		1.24 (1.24)		

Time	Temp	Remarks
11:05 AM	21.6°C	Charged a 500ml flask with ① and ②. H ₂ O purged and condenser on with stirring. Heated to 50°C
11:35 AM	51.3°C	
3:45 PM	48.8°C	NCO peak present as per React IR. Reaction left overnight.
5/8/01 8:30 AM	24°C	Heated react to 50°C with stirring. H ₂ O purge and condenser.
10:00 AM		NCO peak still present.
12:40 PM	49.9°C	NCO peak present.
3:05 PM	50.5°C	Very small peak as per React IR.
3:15 PM		Added Silquest A-11.
3:45 PM		Poured off samples and sealed under H ₂ O head. Sil

CONCLUSION: Viscosity @ 25.1°C, 20rpm, 4-52 = 2811 cps

Samples handed to Derek Cranford.
Submitted samples for GPC analysis.

EXPERIMENTER (signature) D. PethiyagodaDATE 5/8/01READ AND UNDERSTOOD (signature) R. Pethiyagoda

BAYER CORPORATION

4042582

PROJECT Silane Terminated PolyurethanePROJECT NO. 01-DP-018 NAME DINESH PETHIYAGODA DATE 5/7/01
(PRINT)

REFERENCE:

OBJECTIVES:

Prepare 250g of Resin for the PACE Test
using Silquest Y-5187 (gamma-aminopropyl trimethoxysilane)
and Acclac 12200. Samples to be handed to Derek
Crawford.

Material	EW	Amount/g	Eg	Eg Ratio
① Acclac 12200 (OH# = 9.7)	5783.5	237.58 (238.5g)	0.041	1
② Silquest Y-5187 (gamma-aminopropyl trimethoxysilane)	270.97	11.13 (11.49)	0.041	1
③ $\text{Ti}_2(\text{DBTD})$		0.05 (NaTi_2 added)		
④ Vinyltrimethoxysilane (Silquest A-971)		1.24 (1.24)		

%HCO of Silquest Y-5187 = 19.26%

Time	Temp	Remarks
1:50pm	20.8°C	Charged 500ml flask with ① and ②. N_2 purged and condenser on with stirring. Heated to 50°C.
3:55pm	46.1°C	HCO peak present as per React IR. Left react overnight.
5/8/01 8:30 Am	23°C	Heated react to 50°C with stirring. N_2 purged and condenser.
10:00 Am		HCO peak still present.
12:40 pm	49.6°C	HCO peak present.
1:00pm		%HCO = 0.89%
3:05pm	50.0°C	Very small peak as per React IR.
3:15pm		Added Silquest A-971.
3:45pm		Poured off samples and sealed under N_2 head.

CONCLUSION:

Viscosity @ 25.1°C, 10rpm, S-52 = 4935 cP.

Samples handed to Derek Crawford.

Submitted samples for GPC analysis.

(PERFORMER) (signature) D. Pethiyagoda

DATE 5/8/01

READ AND UNDERSTOOD (signature) R. Roese

DATE 2/28/01

BAYER CORPORATION

4048214

PROJECT

STP work

PROJECT NO.

NAME

Melanie L Brown

DATE

9/10/01

(PRINT)

REFERENCE:

OBJECTIVES:

NB#:

	4048214-1	4048214-2	4048214-3	4048214-4
100/0	100/0	80/20	60/40	40/60
Sample #:	1	2	3	4
12K	5187	37.5	30.0	22.5
9K	ASP (7139)	7.5	15.0	22.5
DIDP	17.5	17.5	17.5	17.5
A-1120	0.8	0.8	0.8	0.8
A-171	0.5	0.5	0.5	0.5
T-12	0.10	0.10	0.10	0.10
silica	0.50	0.50	0.50	0.50
CaCO3	43.1	43.1	43.1	43.1

Method:

- add resin, VTMO, aminosilane, DIDP
- mix 1 min @ 2200 rpm
- degas @ 50 deg C for 45 min.
- add T-12
- mix 15 sec @ 2200 rpm
- standard draw down and cure

CONCLUSION:

EXPERIMENTER (signature)

BAYER CORPORATION

4048216

PROJECT

STP work

PROJECT NO.

NAME

Melanie L Sprouson

DATE

7/10/01

(PRINT)

REFERENCE:

OBJECTIVES:

NB#:		4048216-1	4048216-2	4048216-3
		80/20	60/40	40/60
Sample #:		1	2	3
12K	5187	30.0	22.5	15.0
9K	5187	7.5	15.0	22.5
DIDP		17.5	17.5	17.5
A-1120		0.8	0.8	0.8
A-171		0.5	0.5	0.5
T-12		0.10	0.10	0.10
silica		0.50	0.50	0.50
CaCO ₃		43.1	43.1	43.1

Notes:

Method:

- add resin, VTMO, aminosilane, DIDP
- mix 1 min @ 2200 rpm
- degas @ 50 deg C for 45 min.
- add T-12
- mix 15 sec @ 2200 rpm
- standard draw down and cure

CONCLUSION:

EXPERIMENTER (signature)

DATE

READ AND UNDERSTOOD (signature)

DATE

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